Data Report on Benthic Sampling on Artificial Island at Campbell River Estuary, 1982-1986

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DATA REPORT ON BENTHIC SAMPLING ON ARTIFICIAL ISLAND AT CAMPBELL RIVER ESTUARY, 1982-1986

by

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ABSTRACT

Riley, P. M., B. A. Raymond, S. Leigh-Spencer, and M. S. Kotyk. 1987. Data report on benthic sampling on artificial islands at the Campbell River estuary, 1982-1986. Can. Data Rep. Fish. Aquat. Sci. 659: 69 p.

The data presented in this report are from macrobenthic invertebrate samples from islands #1 to #4 (artificial) and Nunn's Island (reference) located in the Campbell River estuary. The purpose of this study was to monitor the colonization of invertebrates on the four artificial islands. Sampling was conducted from May to July over a five year period, 1982-1986.

RESUME

Riley, P. M., B. A. Raymond, S. Leigh-Spencer, and M. S. Kotyk. 1987. Data report on benthic sampling on artificial islands at the Campbell River estuary, 1982-1986. Can. Data Rep. Fish. Aquat. Sci. 659: 69 p.

Sont présentés les résultats de l'analyse des échantillons d'invertébrés macrobenthiques prélevés aux îles artificielles 1 à 4 et à l'île Nunn's (référence) dans l'estuaire de la rivière Campbell. L'objectif de l'étude était de suivre la colonisation des invertébrés aux quatre îles artificielles. Les échantillons ont été prélevés de mai à juillet pendant cinq ans, de 1982 à 1986.

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A. INTRODUCTION

Campbell River, on the east coast of Vancouver Island (Fig. 1), is a major salmon producing area in B.C. The estuary, approximately 73 ha at high tide, has been actively utilized by various industries. The Campbell River estuary rehabilitation project was initated through the cooperative efforts of agency staff, and members of industry and the public (Brownlee et al., 1984).

Various rehabilitative activities were undertaken. Intertidal marsh islands were constructed from November 1981 to February 1982, followed by marsh establishment with the planting of cores consisting of two dominant species, Juncus arcticus and Carex lyngbei (Fig. 2). Other activities included the construction of a dryland log sorting facility and the removal of debris and bark from those areas historically utilized for log sorting.

Coordinated studies for a five year period (1982 to 1986) were developed to help evaluate the biological reponses to estuarine rehabilitation. Detailed component studies included water quality and physical conditions, vegetative components (algal and vascular), benthic invertebrate communities, salmonid and migratory bird utilization.

The data represented here are from one of the component studies, namely benthic invertebrate communities from islands #1 to #4 (artifical) and Nunn's Island (reference).

B. METHODS AND MATERIALS

Benthic invertebrate samples were collected during three sampling periods, May to July, from 1982 to 1986. Six quadrat sampling sites ($0.06m^2$) from each island were randomly selected using a random number matrix, set on a grid overlaying a map of the islands. Three replicates were within the original planted blocks (1v··4v) and three replicates were outside these blocks (1uv··4uv) (Fig. 2). This occurred every year, with the exception of June 1983, when there were a total of ten replicates per island. Samples were also collected from Nunn's Island in a similar manner. Three replicates were taken within vegetated areas, Carex lyngbyei (Nunn's V), and another three replicates were taken outside these areas (Nunn's UV) where occassionally algae, such as Pelvetiopsis sp., Fucus sp. and Enteromorpha sp., covered the mud. Additional samples were collected in June and July 1982 and May 1983. These samples were taken from various groove locations and station 1. Samples collected between May 19 - 27 1983 were obtained by Ed Anderson of EAMS (Anderson and Galbraith, 1985).

Quadrat samples were obtained by removing substrate with a trowel to a depth of 2 cm, then sieving through a 0.5 mm screen. The sample was then preserved in formaldehyde, ethyl alcohol, or isopropanol with rose bengal added as a stain. The thirty samples collected for one sampling period, with the exception of June 1983 when there were fifty, were taken back to the laboratory to be analyzed. The invertebrates were identified and counted using a Wild M-5 Stereomicroscope. Larger samples of invertebrates, alga and/or debris were subsampled by weight or a Folsom Plankton Splitter, then the subsample was analyzed.

C. DATA

The numbers of macrobenthic fauna in 0.06m^2 samples from island vegetated and unvegetated sites at Campbell River estuary are presented in Table 1a to Table 15b.

The numbers of macrobenthic fauna in 0.06m^2 samples from island groove sites at Campbell River estuary are presented in Table 16a to Table 17.

A taxonomic listing of macrobenthic fauna sampled on the islands at Campbell River estuary is shown in Table 18.

A design of the marsh plug planting program is shown in Table 19 and the substrate and vegetation composition of benthic quadrat samples are shown in Table 20.

The site locations in the tables are as follows:
island number - vegetated or unvegetated ie. 1V or 1UV
Station 1 - west side of Tyee Spit
11 - island #1, bay
12 - island #2, cove
14 - island #3, mid, riverside
15 - island #3, mid, channelside
16 - island #3, lower, riverside
17 - island #3, lower, channelside
18 - island #4, veg., southend
71 - North Baikie Slough, eelgrass
141 - island #3 upstream, riverside
151 - island #3 upstream, channelside

D. ACKNOWLEDGEMENTS

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E. REFERENCE

Anderson, Edward P. and Moira Galbraith. 1985. Use by juvenile chinook salmon of artificial islands constructed from dredged material in the Campbell River estuary. Manuscript report, DSS Contract 06SB-FP941-3-0179.

Brownlee, M.J., E.R. Mattice, and C.D. Levings. 1984. The Campbell River estuary: a report on the design, construction and preliminary follow-up study findings of intertidal marsh islands created for purposes of estuarine rehabilitition. Can. MS Rep. Fish. Aquat. Sci. 1789: 54 pp.

Table 1a. Numbers of Corophium spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	3	0	5	0	0	0
1UV	0	0	0	1	0	0	0	0	0
2V	0	0	0	0	2	1	0	0	0
2UV	0	0	0	1	1	0	0	0	0
3V	0	0	0	0	0	9	3	58	2
3UV	0	0	2	1	296	1719	3	3	22
4V	0	0	0	1	6	1	7	6	0
4UV	1	0	14	0	0	1	0	14	0
NUNNS V	0	0	18	0	0	34	17	0	0
NUNNS UV	18	93	96	17	142	20	0	49	0
STATION 1	NS	NS	NS	0	2	0	NS	NS	NS

Table 1b. Numbers of Corophium spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	4	0	0	0	0	0	0	0	0	0	0
1UV	0	0	0	10	4	0	0	0	0	3	0
2V	0	0	0	0	0	0	0	0	0	0	0
2UV	0	1	0	2	0	0	8	0	0	0	0
3V	0	0	56	0	0	864	0	0	0	328	0
3UV	0	116	692	0	0	0	11	3624	0	0	9
4V	8	24	42	2	8	0	0	0	0	0	0
4UV	0	0	1	64	0	8	0	4	0	0	0
NUNNS V	640	896	512	0	34	108	24	960	27	13	121
NUNNS UV	0	0	224	42	92	130	3200	656	2	323	116

Table 1c. Numbers of Corophium spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	4	0	0
1UV	0	8	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	4	0	0
2UV	0	0	0	0	6	0	0	0	0
3V	656	390	0	4	24	0	0	0	0
3UV	1	24	16	0	4	0	0	0	0
4V	0	0	0	0	0	0	12	48	12
4UV	0	24	32	0	4	0	0	1072	0
NUNNS V	32	78	32	16	64	48	0	0	0
NUNNS UV	36	24	56	736	12	0	0	0	0

Table 1d. Numbers of Corophium spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	16	0	0	0	0	4	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	16	0	0	0	0	0	0	16	0
2UV	0	0	608	0	4	0	0	0	0
3V	336	0	0	0	1072	0	0	16	48
3UV	0	0	448	1936	0	0	264	0	0
4V	20	0	0	0	0	2	0	0	0
4UV	360	0	0	160	44	0	0	236	1064
NUNNS V	0	0	96	0	112	32	68	256	16
NUNNS UV	84	0	0	1664	0	64	0	0	0

Table 1e. Numbers of Corophium spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	32	0	48	0	12	0
1UV	0	0	0	0	0	0	10	0	0
2V	12	16	0	0	0	0	0	0	0
2UV	0	0	76	0	0	0	0	0	0
3V	308	0	0	28	652	164	0	0	0
3UV	0	48	400	0	0	0	816	0	96
4V	100	1	48	0	0	0	0	0	0
4UV	4	0	0	0	0	0	0	0	0
NUNNS V	120	64	16	12	46	80	82	136	48
NUNNS UV	120	224	80	288	0	0	1284	28	20

Table 2a. Numbers of Eogammarus spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	1	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	4	1	0	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	3	0	0
3UV	0	0	0	0	0	0	1	1	7
4V	0	0	0	1	0	0	0	0	0
4UV	0	0	1	0	1	0	0	0	0
NUNNS V	0	65	0	0	0	34	0	14	0
NUNNS UV	53	398	167	297	540	655	518	414	230
STATION 1	NS	NS	NS	0	0	0	NS	NS	NS

Table 2b. Numbers of Eogammarus spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	0	0	0
3V	0	0	4	0	0	166	0	0	0	88	0
3UV	0	0	0	0	0	0	1	1366	0	0	17
4V	0	0	0	0	0	0	0	0	0	0	4
4UV	0	0	1	0	0	0	0	0	0	0	0
NUNNS V	256	576	256	0	25	34	8	150	0	0	8
NUNNS UV	192	160	224	33	36	24	1024	448	9	31	0

Table 2c. Numbers of Eogammarus spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	8	0	0	212	0	0	0	0
2V	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	20	0	2	12	0	0	32	0
3UV	3	8	10	0	0	0	0	0	0
4V	0	0	0	0	0	0	8	20	0
4UV	0	24	8	0	4	0	0	0	0
NUNNS V	12	62	6	48	192	324	224	128	54
NUNNS UV	44	20	68	104	0	0	0	224	0

Table 2d. Numbers of Eogammarus spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	416	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	20	0	0	0	0
3V	8	0	0	0	0	0	0	0	0
3UV	0	16	268	72	0	0	12	0	0
4V	0	0	0	0	0	0	0	0	0
4UV	0	176	0	0	36	0	0	0	0
NUNNS V	0	0	96	64	0	0	0	0	0
NUNNS UV	68	0	32	588	0	0	0	0	0

Table 2e. Numbers of Eogammarus spp. in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	8	0	2	0	36	0
1UV	0	8	16	0	0	0	4	0	0
2V	0	96	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	4	516	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	40	136	0	0	0	164	324	80
NUNNS UV	0	0	0	24	0	0	1048	0	0

Table 3a. Numbers of Gnorimosphaeroma insulare in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	2	11	0	1	1	0	0	0	0
1UV	0	0	1	0	0	0	0	0	0
2V	0	1	0	1	5	0	0	0	0
2UV	0	5	0	0	0	0	0	0	0
3V	2	0	1	0	0	0	0	2	0
3UV	0	8	0	0	6	7	0	2	1
4V	0	0	0	0	0	1	74	9	0
4UV	1	0	22	0	3	0	0	51	11
NUNNS V	169	307	72	191	165	443	449	2025	17
NUNNS UV	114	750	482	198	511	272	2270	682	203
STATION 1	NS	NS	NS	15	10	6	NS	NS	NS

Table 3b. Numbers of Gnorimosphaeroma insulare in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	0	0	2	0	0	0	8	0	0	0	0
1UV	84	69	36	0	0	0	0	0	0	1	0
2V	0	0	0	0	0	0	10	0	0	0	0
2UV	0	0	101	0	0	0	0	0	0	0	2
3V	180	0	10	0	0	0	0	0	0	8	0
3UV	0	0	0	0	0	16	0	176	16	0	0
4V	0	96	96	0	0	0	0	0	8	0	0
4UV	2	32	10	0	0	0	0	0	2	0	0
NUNNS V	768	1984	576	0	192	144	16	958	71	183	388
NUNNS UV	576	448	448	64	0	0	576	24	76	160	32

Table 3c. Numbers of Gnorimosphaeroma insulare in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	144	96	220	24	0	4	2	0	0
1UV	0	24	1	0	0	4	4	0	0
2V	32	8	15	2	12	0	0	0	0
2UV	0	3	12	4	8	0	0	0	0
3V	60	30	0	6	48	0	0	0	4
3UV	21	96	44	0	4	0	32	0	0
4V	0	0	0	12	4	12	0	0	0
4UV	0	0	0	8	0	0	0	480	0
NUNNS V	224	44	56	264	336	128	0	0	0
NUNNS UV	100	24	0	0	12	56	0	0	0

Table 3d. Numbers of Gnorimosphaeroma insulare in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	8	0	0	0	0	0	0
1UV	0	0	2	0	0	1	0	0	0
2V	0	0	0	0	0	0	8	0	0
2UV	0	0	0	0	0	1	0	0	0
3V	96	64	8	0	16	0	0	8	0
3UV	0	88	72	16	0	0	0	0	64
4V	8	0	0	0	16	0	16	0	2
4UV	0	0	0	16	0	0	12	20	0
NUNNS V	16	24	512	214	144	320	4	1792	32
NUNNS UV	16	0	0	120	4	0	96	0	0

Table 3e. Numbers of Gnorimosphaeroma insulare in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	48	8	0	280	12	84	0	164	0
1UV	0	32	32	0	0	12	0	0	0
2V	8	166	96	0	112	0	0	0	0
2UV	8	88	64	0	0	0	0	2	0
3V	344	164	84	64	42	144	0	4	384
3UV	352	188	376	0	0	0	74	0	92
4V	304	136	208	124	12	8	26	68	248
4UV	24	12	296	46	208	0	0	4	8
NUNNS V	120	208	104	134	452	372	124	64	168
NUNNS UV	196	496	16	68	0	0	392	12	0

Table 4a. Numbers of Chironomidae larvae in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	69	0	30	86	19	85	1	8	772
1UV	2	4	0	1	1	4	159	0	36
2V	21	0	0	5	19	140	36	15	33
2UV	0	0	0	6	161	7	11	14	19
3V	1	0	6	10	32	21	73	146	6
3UV	3	0	3	10	63	42	9	27	12
4V	7	16	52	13	200	172	11	73	3
4UV	1	4	1	2	4	5	10	107	53
NUNNS V	275	139	127	32	363	0	518	1034	86
NUNNS UV	0	9	4	0	14	0	0	0	0
STATION 1	NS	NS	NS	0	2	0	NS	NS	NS

Table 4b. Numbers of Chironomidae larvae in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JUL. 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	32	0	0	4	32	128	16	48	0	0	60
1UV	2	0	4	0	0	4	0	2	2	0	0
2V	608	16	48	200	8	0	0	8	4	20	0
2UV	0	16	224	0	0	16	0	0	0	0	0
3V	0	35	0	4	0	0	0	0	176	136	0
3UV	0	0	0	0	0	0	0	0	0	0	0
4V	8	4	2	1	0	160	16	8	9	4	0
4UV	1	8	2	0	0	4	0	0	0	0	0
NUNNS V	0	64	0	0	32	0	0	0	0	0	0
NUNNS UV	64	0	0	0	0	0	0	0	0	0	0

Table 4c. Numbers of Chironomidae larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	2	0
1UV	0	0	2	0	0	0	4	8	0
2V	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	4	0	0
3V	0	0	0	0	0	0	56	0	0
3UV	7	0	0	0	0	0	16	0	0
4V	0	0	0	0	0	0	16	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	24	0	48	0	32	32	16	0
NUNNS UV	8	2	0	0	0	0	0	0	0

Table 4d. Numbers of Chironomidae larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	48	0	0	8	0	0	0	16	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	8	8	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	52	0
4UV	0	0	0	0	0	0	0	16	0
NUNNS V	0	0	0	0	0	0	4	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 4e. Numbers of Chironomidae larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	16	172	136	0	0	0
1UV	0	0	0	0	0	0	0	0	4
2V	60	76	0	720	248	136	61	114	4
2UV	3704	0	0	152	424	96	0	0	0
3V	0	0	0	2	88	0	42	0	0
3UV	28	0	0	0	0	0	0	4	22
4V	0	0	0	0	8	456	142	4	0
4UV	692	0	128	42	16	58	32	18	0
NUNNS V	0	0	0	184	48	0	12	0	0
NUNNS UV	0	0	0	0	0	272	0	0	4

Table 5a. Numbers of other Diptera larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	1	0	0	22	4	45	1	1	511
1UV	2	0	1	1	0	3	22	0	1
2V	1	0	0	12	1	36	37	10	79
2UV	0	0	1	2	25	4	4	6	38
3V	1	2	2	0	13	2	18	15	4
3UV	0	0	0	2	0	0	6	6	8
4V	0	12	0	7	36	130	8	21	14
4UV	0	0	0	1	0	1	9	9	24
NUNNS V	7	111	234	5	99	34	173	14	4523
NUNNS UV	88	9	0	0	14	0	0	0	0
STATION 1	NS	NS	NS	0	0	0	NS	NS	NS

Table 5b. Numbers of other Diptera larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 27					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	24	14	2	0	32	42	48	0	0	2	224
1UV	18	3	8	16	0	24	0	12	0	0	162
2V	224	32	0	240	83	0	32	0	6	24	19
2UV	136	0	131	14	0	160	0	0	0	0	0
3V	0	200	2	0	1	0	5	0	10	24	0
3UV	8	4	0	0	0	0	0	20	0	0	0
4V	0	0	2	0	0	288	320	24	0	11	0
4UV	1	24	5	0	0	0	0	0	2	4	0
NUNNS V	0	0	0	0	0	56	2	0	2	67	20
NUNNS UV	128	32	64	0	0	0	21	0	0	0	0

Table 5c. Numbers of other Diptera larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	8	0	2	0	0	0	0	0	0
1UV	32	24	1	0	0	0	0	0	4
2V	84	24	8	0	2	0	0	8	136
2UV	48	0	0	12	0	0	0	0	0
3V	0	0	1	0	0	0	0	0	0
3UV	0	0	0	0	0	0	32	0	0
4V	0	0	0	0	4	0	0	0	0
4UV	16	0	0	0	0	0	32	0	0
NUNNS V	0	16	40	16	0	0	6	0	8
NUNNS UV	4	34	8	0	12	0	0	0	0

Table 5d. Numbers of other Diptera larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	528	8	96	0	0	0	0	0	0
1UV	0	0	32	0	0	0	0	0	1776
2V	1072	672	544	0	0	0	32	0	36
2UV	0	0	0	0	0	0	12	30	0
3V	296	0	0	0	0	0	0	0	0
3UV	0	0	8	0	0	0	0	0	0
4V	0	8	0	0	0	0	0	132	12
4UV	0	0	0	0	0	0	0	32	0
NUNNS V	0	56	0	0	0	0	0	0	0
NUNNS UV	8	0	0	0	0	0	68	96	0

Table 5e. Numbers of other Diptera larvae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	72	928	0	56	0	0	0	0
1UV	0	256	2052	0	0	0	6	0	4
2V	0	0	0	0	0	0	0	0	16
2UV	0	0	0	0	0	0	48	0	128
3V	0	68	0	0	2	4	36	0	12
3UV	0	0	0	0	0	0	0	52	18
4V	0	0	0	0	0	0	6	44	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	48	0	0	186	0	88	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 6a. Numbers of Diptera pupae in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	4	2	1	1	3	3	0	0	43
1UV	0	0	0	0	0	0	7	1	1
2V	1	0	0	0	2	10	14	3	19
2UV	0	0	0	1	8	0	0	0	3
3V	0	0	0	0	1	1	5	16	0
3UV	2	0	0	0	0	0	0	0	0
4V	0	2	7	0	6	2	0	0	0
4UV	0	0	0	0	0	0	0	9	7
NUNNS V	49	9	200	0	66	0	0	0	17
NUNNS UV	9	0	0	0	14	0	0	0	0
STATION 1	NS	NS	NS	0	0	0	NS	NS	NS

Table 6b. Numbers of Diptera pupae in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	10	11	0	0	16	0	0	0	0	0	4
1UV	2	4	8	0	1	0	0	0	0	0	30
2V	0	64	72	32	0	1	0	0	8	0	0
2UV	384	0	32	6	0	0	16	0	0	0	0
3V	0	1368	0	1	0	0	0	0	8	0	0
3UV	0	0	0	0	0	0	0	16	0	0	0
4V	0	0	0	0	0	1	0	0	10	0	0
4UV	0	0	1	32	1	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	16	32	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0	0	0

Table 6c. Numbers of Diptera pupae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 22			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	544	0	154	0	64	80	0	0	0
1UV	256	0	304	20	24	20	0	0	0
2V	188	8	16	0	30	4	0	0	0
2UV	24	1	0	16	4	0	0	0	0
3V	0	0	10	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	8	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	64	80	0	0	0	0	0	0
NUNNS UV	20	24	16	0	0	0	0	0	0

Table 6d. Numbers of Diptera pupae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	800	0	192	0	0	8	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	96	572	680	0	0	0	0	0	0
2UV	0	0	0	0	16	0	0	0	0
3V	416	0	0	0	0	0	2	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	240	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	16	96	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 6e. Numbers of Diptera pupae in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	36	72	108	0	32	0
1UV	8	0	8	0	0	0	0	0	0
2V	0	0	0	0	224	164	8	0	8
2UV	0	0	0	92	416	0	0	0	4
3V	0	0	0	0	0	0	16	0	0
3UV	0	0	0	0	0	0	16	0	0
4V	0	0	0	0	12	324	0	16	0
4UV	0	0	0	0	0	94	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	0
NUNNS UV	0	8	32	0	0	104	0	0	0

Table 7a. Numbers of Diptera adults in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	1	0	0	6
1UV	0	0	0	0	0	0	1	0	0
2V	0	0	0	0	0	0	1	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	1	0	0	0	0	0	0
4V	0	0	1	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	9	4	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0
STATION 1	NS	NS	NS	0	2	0	NS	NS	NS

Table 7b. Numbers of Diptera adults in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	0	0	3	0	0	0	0	0	0	0	0
1UV	4	0	2	0	0	0	0	0	0	0	0
2V	0	48	8	0	0	0	0	0	0	0	0
2UV	0	2	38	0	0	0	16	0	0	1	0
3V	1	0	0	1	0	0	0	30	0	9	0
3UV	8	0	1	0	0	0	0	20	0	0	0
4V	0	0	0	0	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	4	0	0
NUNNS UV	0	0	0	0	0	0	0	1	0	0	0

Table 7c. Numbers of Diptera adults in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	36	0	4	0	0	0
1UV	8	0	22	0	0	0	0	0	0
2V	0	40	2	0	0	0	0	0	16
2UV	128	1	19	0	0	0	0	0	0
3V	0	40	0	0	0	4	0	0	16
3UV	128	0	19	0	4	0	0	0	0
4V	0	0	0	8	0	44	0	0	16
4UV	24	8	18	16	0	0	0	0	0
NUNNS V	0	0	0	8	0	0	0	0	0
NUNNS UV	0	0	2	0	35	32	0	0	0

Table 7d. Numbers of Diptera adults in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	24	0	0	0	0	0	0	0	0
1UV	0	0	32	0	0	0	0	0	0
2V	32	32	0	0	0	0	0	0	0
2UV	0	0	48	4	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	8	0	0	0	0	0	0
4V	0	0	0	0	0	0	16	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	32	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 7e. Numbers of Diptera adults in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	4
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 8a. Numbers of Collembola in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	1
2UV	0	0	0	0	0	0	4	0	0
3V	0	0	0	0	1	0	0	0	1
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	28	16	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0
STATION 1	NS	NS	NS	0	0	0	NS	NS	NS

Table 8b. Numbers of Collembola in $0.06m^2$ macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	4	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	2	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	10	0	0	0
4V	0	0	0	0	0	0	0	0	0	2	0
4UV	0	0	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0	0	0

Table 8c. Numbers of Collembola in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	16	0
2V	0	0	0	0	6	0	0	0	0
2UV	0	1	0	32	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	8	0	0	0	0	0	0	4
4V	0	0	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	4
NUNNS V	0	6	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 8d. Numbers of Collembola in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	20	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 8e. Numbers of Collembola in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 9a. Numbers of other insects in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	1	0
1UV	0	0	0	0	0	0	1	1	0
2V	0	0	0	5	0	0	4	2	0
2UV	0	0	0	0	0	0	0	8	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	0	2
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	9	0	2	0	0	0	0	86
NUNNS UV	0	0	0	0	0	0	0	0	0
STATION 1	NS	NS	NS	0	0	0	NS	NS	NS

Table 9b. Numbers of other insects in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	0	0	2	0	0	1	16	0	0	0	3
1UV	10	4	6	0	0	1	0	1	1	0	4
2V	32	16	24	6	0	1	16	0	0	0	0
2UV	0	96	2	0	0	0	16	0	0	0	0
3V	0	0	0	2	2	0	15	3	0	0	0
3UV	8	0	0	0	0	0	0	15	0	0	0
4V	0	0	0	0	0	0	0	0	0	0	4
4UV	0	0	0	0	1	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	1	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	2	0	0	0

Table 9c. Numbers of other insects in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	1	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	16	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	16	0
3UV	0	0	0	0	0	0	0	0	4
4V	0	0	0	0	0	0	0	16	0
4UV	0	0	0	0	0	8	0	0	4
NUNNS V	0	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 9d. Numbers of other insects in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	16	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	8	0	0	0	0	20	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 9e. Numbers of other insects in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	0
2UV	0	0	0	0	0	0	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	0	0
4UV	0	0	0	0	0	0	0	0	0
NUNNS V	0	0	0	0	0	0	0	0	0
NUNNS UV	0	0	0	0	0	0	0	0	0

Table 10a. Numbers of Oligochaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	70	124	17	50	54	323	0	1	213
1UV	3	14	17	12	1	27	4	1	7
2V	343	4	11	3	10	371	10	34	38
2UV	10	45	0	36	165	42	171	274	8
3V	3	5	1	1	66	62	275	474	144
3UV	5	1403	46	32	2399	218	75	102	81
4V	380	20	9	66	451	162	348	172	11
4UV	11	56	29	25	79	145	15	799	94
NUNNS V	1063	2907	915	252	2439	2315	173	0	120
NUNNS UV	2871	2268	1343	2063	667	342	119	901	117
STATION 1	NS	NS	NS	293	332	621	NS	NS	NS

Table 10b. Numbers of Oligochaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	6	5	62	184	304	1264	408	16	120	248	42
1UV	72	29	118	128	196	24	224	56	36	0	112
2V	2848	1696	32	808	88	104	80	28	26	12	487
2UV	272	2032	3296	542	1584	296	872	444	28	376	375
3V	176	464	18	140	38	360	121	288	320	196	312
3UV	881	20	247	0	50	144	9	1808	304	120	320
4V	64	40	8	7	380	224	120	32	66	300	134
4UV	4	24	29	1216	360	20	128	4	389	248	76
NUNNS V	3904	1024	2304	960	1208	32	544	1449	262	389	8
NUNNS UV	768	896	384	3192	5280	1072	5632	3816	144	1168	1760

Table 10c. Numbers of Oligochaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 22			JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	368	744	420	158	102	84	16	356	482
1UV	104	136	26	232	64	64	48	458	1080
2V	100	8	6	20	10	48	480	784	600
2UV	24	101	80	420	56	552	305	192	464
3V	112	96	105	91	164	288	700	584	604
3UV	82	152	210	88	108	124	28	168	654
4V	68	24	12	120	40	60	292	168	320
4UV	58	64	74	136	656	162	224	96	60
NUNNS V	192	8	24	232	848	648	796	560	412
NUNNS UV	408	164	18	200	244	1606	32	368	1024

Table 10d. Numbers of Oligochaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	1905	648	1224	69	90	72	324	680	540
1UV	462	160	544	112	264	320	20	156	976
2V	1472	576	980	56	20	96	356	1328	160
2UV	460	567	320	338	172	32	290	40	8
3V	576	1016	248	320	160	240	330	136	260
3UV	120	240	32	0	690	156	84	1080	964
4V	456	288	320	928	760	1068	1712	380	680
4UV	896	560	960	120	56	288	360	786	408
NUNNS V	240	360	192	182	96	1248	308	352	792
NUNNS UV	1024	2320	956	128	556	832	480	368	48

Table 10e. Numbers of Oligochaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	24	0	0	0	0	0	128	0
1UV	12	0	0	14	36	16	28	16	0
2V	88	0	0	262	0	0	32	85	4
2UV	0	16	0	18	156	0	0	0	12
3V	0	0	0	0	0	24	0	0	0
3UV	380	54	0	0	0	0	0	0	0
4V	88	0	0	0	356	412	0	0	0
4UV	0	0	12	0	0	364	0	0	64
NUNNS V	0	0	12	0	0	0	48	0	624
NUNNS UV	0	288	0	0	0	0	0	0	0

Table 11a. Numbers of Manayunkia aestuarina in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	44	11	1	0	2	7	0	0	49
1UV	0	0	0	0	0	3	0	0	0
2V	75	1	3	3	6	15	1	0	7
2UV	0	2	0	1	93	3	0	0	3
3V	0	3	0	1	65	1	15	13	2
3UV	0	0	1	0	0	0	0	3	3
4V	17	1	1	2	13	6	25	349	0
4UV	2	6	7	6	1	5	3	9	8
NUNNS V	4210	19	945	2	6559	6910	1849	431	1582
NUNNS UV	571	120	271	248	4189	1278	299	2093	12
STATION 1	NS	NS	NS	0	0	0	NS	NS	NS

Table 11b. Numbers of Manayunkia aestuarina in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	30	68	0	0	0	1936	24	16	0	20	1452
1UV	0	0	0	0	32	0	0	20	6	0	0
2V	0	0	0	24	216	0	0	0	2	16	0
2UV	96	85	64	206	24	357	0	4	14	24	0
3V	83	64	134	0	3	24	105	48	0	32	4
3UV	8	12	54	0	0	0	0	0	32	160	0
4V	456	380	42	17	168	384	600	88	784	320	0
4UV	76	720	66	7616	32	68	40	48	0	16	194
NUNNS V	1984	2688	2432	4848	856	1000	1376	1782	26	0	200
NUNNS UV	2592	2240	2496	366	2080	1840	128	0	232	480	640

Table 11c. Numbers of Manayunkia aestuarina in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	2400	944	1260	3792	256	392	48	120	1080
1UV	32	48	422	68	8	36	212	120	54
2V	912	5856	155	1642	536	1248	36	40	136
2UV	9664	3	256	48	1112	108	36	12	232
3V	1200	2420	4409	16	8	20	64	1124	4
3UV	354	32	21	130	68	24	1266	132	1064
4V	1872	3800	1200	2712	1164	784	2576	1620	988
4UV	5320	808	980	320	472	896	98	16	72
NUNNS V	64	2120	1712	948	592	1280	46	128	48
NUNNS UV	544	246	1608	552	444	3324	96	3024	2634

Table 11d. Numbers of Manayunkia aestuarina in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	2368	0	2124	44	32	436	96	20	60
1UV	230	0	4512	20	14	684	15	0	544
2V	960	3104	2320	488	1068	986	960	144	24
2UV	120	82	272	40	2324	23	12	12	0
3V	0	536	816	120	244	156	160	0	124
3UV	960	8	0	8	950	442	24	72	0
4V	892	4264	3620	2368	1230	1320	480	180	120
4UV	448	240	186	1640	240	552	12	192	36
NUNNS V	112	464	0	214	32	128	724	0	128
NUNNS UV	280	952	1230	0	40	256	264	562	64

Table 11e. Numbers of Manayunkia aestuarina in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	1224	1488	1028	224	508	642	2736	368	129
1UV	5536	1024	1376	96	462	188	8	224	148
2V	64	2248	124	1152	160	108	15	17	0
2UV	4968	1596	320	1028	1856	982	124	362	32
3V	632	824	1340	8	112	576	1524	1284	162
3UV	388	20	0	142	362	11	0	428	96
4V	0	704	624	2588	0	4276	192	252	362
4UV	1648	960	260	156	272	12	404	164	76
NUNNS V	960	1296	0	636	458	736	128	12	0
NUNNS UV	0	784	1608	496	436	64	0	126	28

Table 12a. Numbers of other Polychaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	0	0	0	0	0	0	0	0	0
1UV	0	0	0	0	0	0	0	0	1
2V	0	0	0	0	0	1	0	0	0
2UV	0	0	0	0	0	1	0	0	0
3V	0	0	0	0	0	0	0	0	0
3UV	0	0	0	0	0	0	0	0	0
4V	0	0	0	0	0	0	0	0	0
4UV	0	0	0	1	1	0	0	0	0
NUNNS V	0	0	0	0	0	136	0	0	17
NUNNS UV	9	9	2	0	198	151	20	292	25
STATION 1	NS	NS	NS	0	0	0	NS	NS	NS

Table 12b. Numbers of other Polychaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	2	0	0	12	0	64	0	8	0	0	32
1UV	0	0	0	0	8	0	0	0	0	161	0
2V	0	0	0	0	0	0	0	0	0	28	0
2UV	0	0	0	34	0	0	0	0	12	0	0
3V	0	0	4	0	1	120	0	0	24	24	8
3UV	0	0	0	0	0	0	0	96	608	9	35
4V	8	4	14	2	12	88	16	8	16	24	12
4UV	0	24	1	0	16	0	1	0	4	4	4
NUNNS V	640	640	320	32	104	32	16	476	1	22	10
NUNNS UV	96	192	64	344	802	80	1564	1064	88	578	736

Table 12c. Numbers of other Polychaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	432	320	266	98	0	24	0	0	0
1UV	44	120	24	8	192	4	0	0	0
2V	0	0	15	16	12	0	12	0	8
2UV	0	9	0	0	8	0	0	4	28
3V	0	0	0	212	32	4	28	18	96
3UV	0	8	0	0	0	0	60	0	66
4V	4	0	0	60	4	0	40	68	34
4UV	0	120	2	4	60	0	4	184	0
NUNNS V	0	0	0	4	8	64	0	4	16
NUNNS UV	20	20	32	288	156	24	0	224	0

Table 12d. Numbers of other Polychaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	32	56	0	0	0	24	4	0	0
1UV	0	0	0	0	0	0	0	0	0
2V	0	0	0	0	0	0	0	0	32
2UV	0	12	0	4	20	0	2	0	0
3V	40	0	0	0	64	20	4	56	36
3UV	10	12	8	32	20	0	0	0	0
4V	57	40	32	64	68	0	0	4	0
4UV	0	32	28	0	120	0	16	132	0
NUNNS V	0	16	0	0	0	0	164	0	48
NUNNS UV	16	0	0	256	4	96	0	32	0

Table 12e. Numbers of other Polychaeta in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	8	40	2	8	0	0	0	20	0
1UV	0	8	0	12	0	0	0	0	4
2V	12	20	0	0	0	0	0	0	0
2UV	0	4	8	0	0	0	0	12	0
3V	28	40	0	2	4	0	8	0	2
3UV	0	0	4	0	0	0	8	0	0
4V	12	0	0	0	16	0	3	4	0
4UV	0	12	0	0	12	0	0	2	0
NUNNS V	20	4	0	0	0	0	20	8	52
NUNNS UV	0	16	48	16	0	2	960	0	104

Table 13a. Numbers of other fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	16	25	2	80	0	91	0	3	164
1UV	9	2	44	3	1	3	49	1	4
2V	43	3	0	7	17	57	3	7	41
2UV	1	5	3	22	31	71	14	14	5
3V	24	15	1	2	114	442	179	413	11
3UV	21	77	108	10	3167	1060	35	97	125
4V	14	24	3	39	57	26	32	24	6
4UV	28	34	14	11	6	122	16	51	47
NUNNS V	514	938	461	88	2340	1021	346	100	310
NUNNS UV	377	65	43	446	284	262	180	730	39
STATION 1	NS	NS	NS	47	44	68	NS	NS	NS

Table 13b. Numbers of other fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	80	10	4	176	192	184	544	72	68	16	78 [i]
1UV	22	2	18	128	44	424	24	7	8	49	384
2V	64	48	24	208	32	232	240	40	17	8	8
2UV	176	144	416	62	128	248	24	0	32	24	3
3V	1456	144	16	4	53	940	505	64	33	640	0
3UV	48	308	320	0	1	3664	102	81	976	352	8
4V	408	16	18	82	40	48	96	65	40	5	0
4UV	2	192	7	2961	114	64	64	52	8	32	0
NUNNS V	64	128	832	833	30	102	6	770	19 [ii]	4	0
NUNNS UV	160	288	96	64	1798	416	512	528	276	0	96

FOOTNOTE :

[i] Includes 2 Lagunogammarus setosus

[ii] Includes 12 Lagunogammarus setosus

Table 13c. Numbers of other fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	2	0	4	224	0	143	16	118	92
1UV	0	8	6	80	84	16	140	34	52
2V	235	248	27	0	0	0	180	210	272
2UV	440	22	284	172	52	36	84	40	160
3V	64	56	52	8	12	76	92	126	48
3UV	25	0	0	16	0	16	18	196	48
4V	68	380	486	80	52	120	88	84	102
4UV	336	136	20	80	28	168	2	72	16
NUNNS V	80	284	40	4	32	136	112	206	32
NUNNS UV	212	214	118	284	108	592	2	352	12

Table 13d. Numbers of other fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	408	560	280	36	15	56	296	98	104
1UV	421	8	1168	116	40	62	8	208	208
2V	560	640	230	64	24	16	20	288	40
2UV	56	0	336	88	76	6	28	4	8
3V	104	592	540	76	352	12	142	48	32
3UV	196	34	1556	0	430	0	0	160	96
4V	428	392	980	704	764	430	56	72	20
4UV	192	272	12	86	56	136	56	104	12
NUNNS V	16	12	64	32	160	384	84	96	131
NUNNS UV	136	420	350	132	64	387	78	230	80

Table 13e. Numbers of other fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	36	544	24	82	252	422	248	268	5
1UV	436	880	64	0	144	16	8	36	0
2V	0	48	76	144	0	92	10	0	8
2UV	0	392	16	168	200	584	32	18	16
3V	320	144	0	22	0	136	188	78	0
3UV	476	524	12	72	140	2	16	16	96
4V	860	122	232	1244	152	274	19	36	84
4UV	128	184	136	0	56	112	0	38	36
NUNNS V	120	8	960	128	16	32	160	238	40
NUNNS UV	236	476	208	560	144	0	628	152	80

Table 14a. Numbers of total fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1982.

	MAY 26 - 27			JUNE 22 & 30			JULY 19 - 20		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	206	173	51	243	83	560	3	14	1758
1UV	16	20	63	18	3	40	243	4	50
2V	484	9	14	36	66	632	106	71	218
2UV	11	57	4	69	484	128	204	316	76
3V	31	25	11	14	292	538	571	1137	170
3UV	31	1488	161	55	5931	3046	129	241	259
4V	418	75	73	129	769	500	505	654	36
4UV	44	100	88	46	95	279	53	1049	244
NUNNS V	6287	4541	2992	572	12031	10927	3525	3618	6758
NUNNS UV	4110	3721	2408	3269	6573	2980	3406	5161	626
STATION 1	NS	NS	NS	355	392	695	NS	NS	NS

Table 14b. Numbers of total fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1983.

	MAY 18 - 26			JUNE 22					JULY 27		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP4	REP5	REP1	REP2	REP3
1V	188	108	75	376	576	3619	1064	160	188	286	1895
1UV	214	111	202	282	289	477	248	98	53	214	692
2V	3776	1920	208	1518	427	338	378	76	63	108	514
2UV	1064	2376	4304	866	1738	1077	952	448	86	425	380
3V	1896	2275	244	152	98	2474	751	433	571	1485	324
3UV	953	460	1314	0	51	3824	123	7232	1936	641	389
4V	952	564	224	111	608	1193	1168	225	933	666	154
4UV	86	1024	123	11889	524	164	233	108	405	304	274
NUNNS V	8256	8000	7232	6673	2481	1508	2009	6577	412	678	755
NUNNS UV	4576	4256	4000	4105	10088	3562	12657	6539	827	2740	3380

Table 14c. Numbers of total fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1984.

	MAY 31			JUNE 27			JULY 25		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	3898	2104	2326	4332	422	731	86	596	1654
1UV	476	376	809	408	584	144	408	636	1190
2V	1551	6192	244	1680	608	1300	712	1058	1168
2UV	10328	141	651	704	1246	696	429	248	884
3V	2092	3052	4577	339	300	392	940	1900	772
3UV	621	328	320	234	188	164	1452	496	1840
4V	2012	4212	1698	2992	1268	1020	3032	2024	1472
4UV	5754	1184	1134	564	1224	1234	360	1920	156
NUNNS V	604	2706	1990	1588	2072	2660	1216	1042	570
NUNNS UV	1396	772	1926	2164	1023	5634	130	4192	3670

Table 14d. Numbers of total fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1985.

	JUNE 1			JULY 1			JULY 30		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	6081	1272	3924	149	137	600	720	798	704
1UV	1113	584	6290	248	318	1067	43	364	3504
2V	4272	5596	4754	616	1112	1098	1376	1792	292
2UV	636	661	1584	474	2632	62	344	86	16
3V	1872	2208	1612	516	1908	428	646	272	500
3UV	1286	398	2400	2064	2090	598	384	1312	1124
4V	1861	5240	4952	4064	2838	2820	2300	840	834
4UV	1896	1280	1186	2022	552	976	456	1518	1520
NUNNS V	432	1028	960	706	544	2112	1356	2496	1147
NUNNS UV	1632	3692	2568	2888	668	1635	986	1288	192

Table 14e. Numbers of total fauna in 0.06m^2 macrobenthic samples from islands at Campbell River estuary in 1986.

	MAY 8			JUNE 3			JULY 7		
SITE	REP1	REP2	REP3	REP1	REP2	REP3	REP1	REP2	REP3
1V	1316	2176	1982	686	1072	1442	2984	1028	134
1UV	5992	2208	3548	122	642	232	64	276	160
2V	244	2670	296	2278	744	500	126	216	40
2UV	8680	2096	484	1458	3052	1662	204	394	196
3V	1632	1240	1424	126	900	1048	1814	1366	560
3UV	1624	838	1308	214	502	13	930	500	420
4V	1364	963	1112	3956	556	5750	388	424	694
4UV	2496	1168	832	244	564	640	436	226	184
NUNNS V	1340	1620	1276	1094	1020	1406	738	870	1012
NUNNS UV	552	2292	1992	1452	580	442	4312	318	236

Table 15a. Numbers of total fauna in 0.06m^2 macrobenthic samples from islands #1 to #4 at Campbell River estuary.

TAXONOMIC GROUP	1982		1983		1984		1985		1986	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Corophium spp.	2183	8.5	5893	7.0	2345	2.2	6670	5.8	2871	3.2
Eogammarus spp.	21	0	1647	2.0	371	.4	1024	.9	690	.8
Gnorimosphaeroma insulare	229	.9	965	1.1	1480	1.4	542	.5	5260	5.9
Chironomidae Larvae	2962	11.5	2080	2.5	115	.1	156	.1	7905	8.8
Other Diptera Larvae	1222	4.7	2687	3.2	478	.5	5326	4.7	3808	4.2
Diptera Pupae	185	.7	2139	2.5	1775	1.7	3022	2.6	1658	1.8
Diptera Adults	11	0	184	.2	621	.6	196	.2	4	0
Collembola	7	0	18	0	71	.1	20	0	0	0
Other Insects	24	0	310	.4	65	.1	44	0	0	0
Oligochaeta	10777	41.7	30189	35.9	16184	15.5	33515	29.4	2701	3.0
Manayunkia aestuarina	898	3.5	17614	21.0	71378	68.4	46778	41.0	53424	59.5
Other Polychaeta	5	0	1548	1.8	2752	2.6	1081	.9	315	.4
Other Fauna	7296	28.2	18741	22.3	6652	6.4	15718	13.8	11224	12.5
TOTAL FAUNA	25820		84015		104287		114092		89860	

Table 15b. Numbers of total fauna in 0.06m^2 macrobenthic samples from Nunn's island at Campbell River estuary.

TAXONOMIC GROUP	1982		1983		1984		1985		1986	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Corophium spp.	506	.6	8120	8.0	1134	3.2	2392	9.1	2648	11.7
Eogammarus spp.	3385	4.0	3494	3.4	1510	4.3	848	3.2	1816	8.1
Gnorimosphaeroma insulare	9351	11.0	7684	7.6	1244	3.5	3294	12.5	2926	13.0
Chironomidae Larvae	2603	3.1	160	.2	162	.5	4	0	520	2.3
Other Diptera Larvae	5311	6.3	392	.4	144	.4	228	.9	322	1.4
Diptera Pupae	364	.4	48	0	204	.6	112	.4	144	.6
Diptera Adults	15	0	5	0	77	.2	32	.1	0	0
Collembola	44	0	0	0	6	0	0	0	0	0
Other Insects	97	.1	3	0	0	0	0	0	0	0
Oligochaeta	22121	26.0	36196	35.7	7784	22.0	10482	39.8	972	4.3
Manayunkia aestuarina	31588	37.2	30286	29.9	19410	54.9	5450	20.7	7768	34.4
Other Polychaeta	859	1.0	7901	7.8	860	2.4	632	2.4	1250	5.5
Other Fauna	8703	10.2	7022	6.9	2820	8.0	2856	10.8	4186	18.6
TOTAL FAUNA	84947		101311		35355		26330		22552	

Table 16a. Numbers of Corophium sp. in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	68	1261	451	11	337	200	464	NS	NS
14	2852	2286	NS	14	1136	2432	1424	NS	NS
15	2825	1310	NS	15	512	1024	704	NS	NS
16	3759	2699	NS	12	560	544	384	NS	NS
17	3107	3455	NS	18	0	0	0	NS	NS
141	1693	1405	NS	71	536	400	1024	798	1564
151	664	1340	NS						

Table 16b. Numbers of Eogammarus spp. in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	18	0	0	11	168	6	568	NS	NS
14	1502	2014	NS	14	336	1792	256	NS	NS
15	1877	592	NS	15	576	1024	672	NS	NS
16	2387	1670	NS	12	88	40	8	NS	NS
17	1729	1703	NS	18	0	0	0	NS	NS
141	760	225	NS	71	0	0	0	102	18
151	61	506	NS						

Table 16c. Numbers of Gnorimosphaeroma insulare in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	0	0	22	11	143	28	496	NS	NS
14	220	294	NS	14	256	384	800	NS	NS
15	70	19	NS	15	192	0	64	NS	NS
16	0	0	NS	12	48	32	4	NS	NS
17	22	0	NS	18	192	0	0	NS	NS
141	405	211	NS	71	0	12	112	40	6
151	20	14	NS						

Table 16d. Numbers of Chironomidae larvae in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	34	25	33	11	0	0	0	NS	NS
14	0	0	NS	14	0	0	0	NS	NS
15	0	0	NS	15	0	0	0	NS	NS
16	0	33	NS	12	0	0	0	NS	NS
17	44	0	NS	18	192	64	64	NS	NS
141	12	0	NS	71	88	0	0	4	4
151	0	7	NS						

Table 16e. Numbers of other Diptera larvae in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	9	12	0	11	0	0	0	NS	NS
14	0	0	NS	14	0	0	0	NS	NS
15	0	0	NS	15	0	0	0	NS	NS
16	0	0	NS	12	0	0	0	NS	NS
17	44	0	NS	18	576	128	80	NS	NS
141	0	0	NS	71	0	0	24	0	0
151	0	0	NS						

Table 16f. Numbers of Diptera pupae in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	9	0	0	11	0	0	0	NS	NS
14	0	0	NS	14	0	0	0	NS	NS
15	0	0	NS	15	0	0	0	NS	NS
16	0	0	NS	12	0	0	0	NS	NS
17	0	0	NS	18	448	160	272	NS	NS
141	0	0	NS	71	0	0	0	0	0
151	0	0	NS						

Table 16g. Numbers of Diptera adults in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	0	0	0	11	0	0	0	NS	NS
14	0	0	NS	14	0	0	0	NS	NS
15	0	0	NS	15	0	0	0	NS	NS
16	0	0	NS	12	0	8	0	NS	NS
17	0	0	NS	18	0	0	0	NS	NS
141	0	0	NS	71	0	0	0	0	0
151	0	0	NS						

Table 16h. Numbers of Collembola in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	0	0	0	11	0	0	0	NS	NS
14	0	0	NS	14	0	0	0	NS	NS
15	0	0	NS	15	0	0	0	NS	NS
16	0	0	NS	12	0	0	0	NS	NS
17	0	0	NS	18	0	0	0	NS	NS
141	0	0	NS	71	0	0	0	0	0
151	0	0	NS						

Table 16i. Numbers of other insects in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	0	0	0	11	0	0	0	NS	NS
14	0	0	NS	14	0	0	0	NS	NS
15	0	0	NS	15	0	0	0	NS	NS
16	0	0	NS	12	0	0	0	NS	NS
17	0	0	NS	18	0	0	0	NS	NS
141	0	0	NS	71	0	0	0	0	0
151	0	0	NS						

Table 16j. Numbers of Oligochaeta in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	1208	1063	1584	11	84	44	128	NS	NS
14	0	158	NS	14	256	2048	160	NS	NS
15	667	127	NS	15	1920	3264	1376	NS	NS
16	0	44	NS	12	112	312	28	NS	NS
17	700	296	NS	18	128	64	32	NS	NS
141	0	28	NS	71	320	68	152	186	8
151	243	7	NS						

Table 16k. Numbers of other Polychaeta in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	9	49	0	11	7	24	96	NS	NS
14	0	0	NS	14	16	0	0	NS	NS
15	0	0	NS	15	0	384	0	NS	NS
16	0	0	NS	12	72	120	108	NS	NS
17	0	0	NS	18	1025	64	160	NS	NS
141	0	0	NS	71	0	4	16	4	2
151	0	0	NS						

Table 16l. Numbers of Manayunkia aestuarina in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	26	0	0	11	0	0	0	NS	NS
14	0	0	NS	14	0	0	0	NS	NS
15	0	0	NS	15	0	0	0	NS	NS
16	0	0	NS	12	48	72	76	NS	NS
17	0	0	NS	18	64	3712	1232	NS	NS
141	0	0	NS	71	0	0	0	0	0
151	0	0	NS						

Table 16m. Numbers of other fauna in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	68	322	132	11	5	24	40	NS	NS
14	786	227	NS	14	608	384	117	NS	NS
15	632	296	NS	15	224	2560	480	NS	NS
16	851	1150	NS	12	16	8	4	NS	NS
17	1444	1703	NS	18	448	64	96	NS	NS
141	380	478	NS	71	96	28	32	10	12
151	172	151	NS						

Table 16n. Numbers of Lagunogammarus setosus in 0.06m^2 macrobenthic samples from island grooves and Baikie Slough (71) at Campbell River estuary in 1982 - 1983.

	JULY 19 - 20 1982				MAY 19 - 27 1983				
SITE	REP1	REP2	REP3	SITE	REP1	REP2	REP3	REP4	REP5
11	0	0	0	11	0	0	0	NS	NS
14	0	158	NS	14	0	0	0	NS	NS
15	70	63	NS	15	0	0	0	NS	NS
16	0	0	NS	12	0	0	0	NS	NS
17	0	49	NS	18	0	0	0	NS	NS
141	49	323	NS	71	0	0	0	0	0
151	71	226	NS						

Table 17. Numbers of total fauna in 0.06m^2 macrobenthic samples from island grooves at Campbell River estuary in 1982 - 1983.

TAXONOMIC GROUP	1982		1983	
	NO.	%	NO.	%
Corophium spp.	29175	47.2	14043	29.3
Eogammarus spp.	15044	24.3	5654	11.8
Gnorimosphaeroma insulare	1297	2.1	2809	5.9
Chironomidae Larvae	188	.3	416	.9
Other Diptera Larvae	65	.1	808	1.7
Diptera Pupae	9	0	880	1.8
Diptera Adults	0	0	8	0
Collembola	0	0	0	0
Other Insects	0	0	0	0
Oligochaeta	6125	9.9	10690	22.3
Manayunkia aestuarina	26	0	5204	10.9
Other Polychaeta	58	.1	2102	4.4
Other Fauna	8792	14.2	5256	11.0
Lagunogammarus setosus	1009	1.6	0	0
TOTAL FAUNA	61788		47870	

Table 18. Taxonomic listing of fauna in macrobenthic samples for islands in Campbell River estuary from 1982 to 1986.

Corophium spp.	*C. spinicorne* Unidentified juveniles
Eogammarus spp.	*E. confervicolus* *E. oclairi* Unidentified juveniles
Lagunogammarus setosus	
Gnorimosphaeroma insulare	
Chironomidae larvae	
Other Diptera larvae	Dolichopodidae Ephydridae Heleidae Muscidae Simulidae Tabanidae Tipulidae
Diptera pupae	Chironomidae Heleidae Tipulidae
Diptera adults	Chironomidae Dolichopodidae Ephydridae Tipulidae
Collembola	
Other Insecta	Coleoptera larvae Coleoptera adults Dystiscidae Staphylinidae Hemiptera adults and nymphs Hymenoptera adults Lepidoptera adults Hymenoptera adults Chalcidoidea Lepidoptera adults Trichoptera adults and larvae

Oligochaeta	Enchytraeidae
	Naididae
	Tubificidae
Manayunkia aestuarina	
Other Polychaeta	*Arenicola marina*
	Hesionidae
	Hobsonia florida
	Nereis limnicola
	Nereis sp.
	Unidentified Ampharetidae
	Unidentified Nereidae
Other Fauna	Invertebrate eggs and egg cases
	Foraminifera
	Planariidae
	Nematoda
	Acanthocephala
	Gastropoda
	Littorina sp.
	Pelecypoda
	Macoma sp.
	Cladocera
	Bosmina sp.
	Ostracoda
	Conchoecia sp.
	Cumacea
	Cumella vulgaris
	Mysidacea
	Calanoida
	Calanus marshallae
	Harpacticoida
	Harpacticus sp.
	Huntemannia sp.
	Onychocamptus sp.
	Unidentified Ameiridae
	Amphipoda
	Pontogeneia sp.
	Acari
	Araneida

Table 19. Design of the marsh plug planting program.

ISLAND 1

BLOCK	SIZE (m)	SPACING	ROWS	#PLUGS	DOMINANT SPECIES
A	20 x 38	1.0	21 x 41	861	Carex
C	35 x 40	1.0	36 x 41	1476	Carex
D	10 x 90	0.5	21 x 181	3801	Carex
	4 x 40	0.5	9 x 81	729	Carex
				6867	

(Note: there is no Block B)

ISLAND 2

A	15 x 53	1.0	16 x 51	816	Carex
B	10 x 20	1.0	10 x 21	210	Carex
C	+72 x 10*	0.5	134 x 21*	2968	Juncus
			(plus 154 plugs)	3994	

* A pie shaped portion could not be laid out by rows so each planting location was marked.

ISLAND 3

A	4 x 50	0.5	9 x 83	747	Carex
B	4 x 63	0.5	9 x 128	1152	Carex
C	4 x 55	0.5	9 x 111	999	Carex
D	7 x 25	0.5	15 x 51	765	Carex
E	7 x 21	0.5	15 x 43	645	Carex
				4308	

ISLAND 4

A	15 X 20	0.5	31 X 81	2511	Juncus
B	15 X 30	0.5	31 X 60	1860	Juncus Mix/Juncus
C	25 X 30	0.5	51 X 61	3111	Carex
D	20 X 30	1.0	21 X 31	651	Carex
				8133	

B - First 30 rows = from Block A juncus/carex mix, next 30 rows - juncus
TOTAL PLUGS: 23302

Table 20. Substrate and vegetation composition of Campbell River estuary benthic quadrat samples.

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
1V	MAY 26/82	1	P					SI/SA/GR
1V	MAY 26/82	2	P					SA/GR
1V	MAY 26/82	3		P				SA/GR
1UV	MAY 26/82	1						SA/GR
1UV	MAY 26/82	2						SA/GR
1UV	MAY 26/82	3						SA/GR
2V	MAY 27/82	1		P				SI/SA/GR
2V	MAY 27/82	2	P					SA/GR
2V	MAY 27/82	3	P					SA/GR
2UV	MAY 27/82	1						SA/GR/PLUG
2UV	MAY 27/82	2						GR
2UV	MAY 27/82	3						SA/GR
3V	MAY 26/82	1	P	P				SA/GR/PLUG
3V	MAY 26/82	2		P				SA/GR/PLUG
3V	MAY 26/82	3		P				SA/GR/PLUG
3UV	MAY 26/82	1						SA/GR
3UV	MAY 26/82	2						SA/WD
3UV	MAY 26/82	3						SI/SA/GR
4V	MAY 26/82	1	P					SI/SA/GR
4V	MAY 26/82	2	P					SA/GR/PLUG
4V	MAY 26/82	3		P				SA/GR
4UV	MAY 26/82	1						SI/SA/GR
4UV	MAY 26/82	2						SI/SA/GR
4UV	MAY 26/82	3						SA/GR
NUNNS V	MAY 27/82	1				P		SI/WD
NUNNS V	MAY 27/82	2				P		SI/WD
NUNNS V	MAY 27/82	3				P		SI/WD
NUNNS UV	MAY 27/82	1	P	P		P		SI/WD
NUNNS UV	MAY 27/82	2	P	P				SI
NUNNS UV	MAY 27/82	3	P					SI/RT
1V	JUN 22/82	1	P	P				SI/SA/GR
1V	JUN 22/82	2	P					SA/GR
1V	JUN 22/82	3	P					SI/SA/GR
1UV	JUN 22/82	1						SI/SA/GR/WD
1UV	JUN 22/82	2						SA/GR
1UV	JUN 22/82	3						SA/GR
2V	JUN 22/82	1	P					SA/GR/CO
2V	JUN 22/82	2	P					SA/GR
2V	JUN 22/82	3	P					SA/GR/PLUG
2UV	JUN 22/82	1						SA/GR/CO
2UV	JUN 22/82	2					P	SI/SA/GR

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
2UV	JUN 22/82	3						SA/GR
3V	JUN 22/82	1						SA/GR
3V	JUN 22/82	2	P	P				SA/GR/PLUG
3V	JUN 22/82	3	P				P	SA/GR
3UV	JUN 22/82	1						SA/GR
3UV	JUN 22/82	2						SI/SA/WD
3UV	JUN 22/82	3						SA/GR
4V	JUN 22/82	1						SA/GR
4V	JUN 22/82	2		P			P	SA/GR/PLUG
4V	JUN 22/82	3		P			P	SI/SA/GR
4UV	JUN 22/82	1						SA/GR
4UV	JUN 22/82	2						SA/GR
4UV	JUN 22/82	3						SA/GR
NUNNS V	JUN 22/82	1				P		SI
NUNNS V	JUN 22/82	2				P		SI
NUNNS V	JUN 22/82	3				P		SI
NUNNS UV	JUN 22/82	1		P				SI/RT
NUNNS UV	JUN 22/82	2	P					SI/RT
NUNNS UV	JUN 22/82	3	P					SI/RT
STN. 1	JUN 30/82	1					P	SA/GR
STN. 1	JUN 30/82	2					P	SA/GR
STN. 1	JUN 30/82	3					P	SA/GR
1V	JUL 20/82	1					P	SA/GR
1V	JUL 20/82	2					P	SA/GR
1V	JUL 20/82	3		P				SI/SA/GR
1UV	JUL 20/82	1						SA/GR
1UV	JUL 20/82	2					P	SA/GR
1UV	JUL 20/82	3						SA/GR
2V	JUL 20/82	1					P	SA/GR
2V	JUL 20/82	2					P	SA/GR
2V	JUL 20/82	3						SA/GR
2UV	JUL 20/82	1					P	SA/GR
2UV	JUL 20/82	2					P	SA/GR
2UV	JUL 20/82	3					P	SA/GR
3V	JUL 19/82	1					P	SA/GR/PLUG
3V	JUL 19/82	2					P	SA/GR
3V	JUL 19/82	3					P	SA/GR
3UV	JUL 19/82	1					P	SA/GR
3UV	JUL 19/82	2					P	SA/GR
3UV	JUL 19/82	3						SA/GR
4V	JUL 20/82	1					P	SA/GR
4V	JUL 20/82	2					P	SA/GR
4V	JUL 20/82	3					P	SA/GR

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
4UV	JUL 20/82	1					P	SA/GR
4UV	JUL 20/82	2					P	SA/GR
4UV	JUL 20/82	3					P	SA/GR
NUNNS V	JUL 20/82	1				P		SI/WD
NUNNS V	JUL 20/82	2				P		SI/WD
NUNNS V	JUL 20/82	3				P		SI/WD
NUNNS UV	JUL 20/82	1	P	P				SI/WD
NUNNS UV	JUL 20/82	2	P	P				SI/WD
NUNNS UV	JUL 20/82	3		P				SI/WD
141	JUL 19/82	1					P	SI/SA/CO/WD
141	JUL 19/82	2					P	SI/WD
151	JUL 19/82	1					P	SI/SA/WD
151	JUL 19/82	2					P	SI/SA/WD
14	JUL 19/82	1					P	SA/GR
14	JUL 19/82	2					P	SI/SA/GR/WD
15	JUL 19/82	1					P	SI/SA/GR/WD
15	JUL 19/82	2					P	SI/SA/GR/WD
16	JUL 19/82	1					P	SA/GR/WD
16	JUL 19/82	2					P	SA/GR/WD
17	JUL 19/82	1					P	SI/SA/WD
17	JUL 19/82	2					P	SI/SA/WD
11	JUL 19/82	1					P	SI/SA/GR
11	JUL 19/82	2					P	SI/SA/GR
11	JUL 19/82	3					P	SI/SA/GR
1V	JUN 22/83	1					100%	SA/CO
1V	JUN 22/83	2	10%				70%	GR/CO
1V	JUN 22/83	3						SA/GR
1V	JUN 22/83	4					50%	SA/GR
1V	JUN 22/83	5					100%	SA/GR/CO
1UV	JUN 22/83	1					50%	SA/GR/CO/WD
1UV	JUN 22/83	2					100%	GR/CO
1UV	JUN 22/83	3	10%				100%	GR/CO
1UV	JUN 22/83	4					P	GR/CO
1UV	JUN 22/83	5					100%	GR/CO
2V	JUN 22/83	1					50%	SA/GR
2V	JUN 22/83	2					40%	SA/GR/CO
2V	JUN 22/83	3					100%	GR/CO
2V	JUN 22/83	4	40%				100%	GR
2V	JUN 22/83	5	20%				100%	GR/CO
2UV	JUN 22/83	1						SA/GR/CO
2UV	JUN 22/83	2					100%	GR/CO
2UV	JUN 22/83	3						SA
2UV	JUN 22/83	4					100%	GR/CO
2UV	JUN 22/83	5					100%	CO/BO
3V	JUN 22/83	1					P	SA/GR/CO
3V	JUN 22/83	2					P	SA/GR/CO

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
3V	JUN 22/83	3						SA/CO
3V	JUN 22/83	4					P	SA/CO
3V	JUN 22/83	5					P	SA/GR/CO
3UV	JUN 22/83	1						CO
3UV	JUN 22/83	2						GR/CO
3UV	JUN 22/83	3					P	SA/CO
3UV	JUN 22/83	4					P	SA/CO
3UV	JUN 22/83	5						SA
4V	JUN 23/83	1					100%	SA/CO
4V	JUN 23/83	2					100%	GR/CO
4V	JUN 23/83	3	P					SA/BO
4V	JUN 23/83	4	P					SA/GR
4V	JUN 23/83	5	P					GR/CO
4UV	JUN 23/83	1					10%	SA/GR/CO
4UV	JUN 23/83	2					100%	CO/BO
4UV	JUN 23/83	3					100%	GR/CO/BO
4UV	JUN 23/83	4					100%	GR/CO/BO
4UV	JUN 23/83	5					100%	GR
NUNNS V	JUN 23/83	1	60%					GR/CO
NUNNS V	JUN 23/83	2	P		P			SI
NUNNS V	JUN 23/83	3	P		P			SA
NUNNS V	JUN 23/83	4	P		P			SA
NUNNS V	JUN 23/83	5	P		P			SI/SA
NUNNS UV	JUN 23/83	1			100%			SI
NUNNS UV	JUN 23/83	2						SI
NUNNS UV	JUN 23/83	3						SA
NUNNS UV	JUN 23/83	4						SA/WD
NUNNS UV	JUN 23/83	5						SA
1V	JUL 27/83	1					100%	SA/GR/CO
1V	JUL 27/83	2					100%	GR/CO
1V	JUL 27/83	3					100%	SA/GR/CO
1V	JUL 27/83	4					80%	GR/CO
1V	JUL 27/83	5					30%	SA/GR
1UV	JUL 27/83	1					50%	GR/CO/BO
1UV	JUL 27/83	2					30%	SA/GR
1UV	JUL 27/83	3					50%	SA/GR
1UV	JUL 27/83	4					85%	SA/GR
1UV	JUL 27/83	5					70%	SA/GR
2V	JUL 27/83	1					100%	SA/GR
2V	JUL 27/83	2	60%					GR/CO
2V	JUL 27/83	3	30%				100%	SA/CO
2V	JUL 27/83	4					100%	GR/CO
2V	JUL 27/83	5					100%	SA/GR
2UV	JUL 27/83	1					100%	GR/CO
2UV	JUL 27/83	2					100%	SA/GR/CO
2UV	JUL 27/83	3					100%	GR/CO
2UV	JUL 27/83	4					100%	GR

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
2UV	JUL 27/83	5					25%	SA/GR/CO
1V	MAY 31/84	1	P					SI/SA/CO
1V	MAY 31/84	2						GR/CO
1V	MAY 31/84	3						SA/CO
1UV	MAY 31/84	1						SA/GR/WD
1UV	MAY 31/84	2						SI/SA
1UV	MAY 31/84	3						SI/SA
2V	MAY 31/84	1	P					SI/SA/GR/CO
2V	MAY 31/84	2	P					SI/SA/GR/CO
2V	MAY 31/84	3	P					SI/SA
2UV	MAY 31/84	1						SI/SA
2UV	MAY 31/84	2						SI/SA/GR
2UV	MAY 31/84	3						SI/SA
3V	MAY 31/84	1						SI/SA/CO
3V	MAY 31/84	2						SI/SA/GR/CO
3V	MAY 31/84	3						SA/GR
3UV	MAY 31/84	1		P				GR/CO
3UV	MAY 31/84	2						SA/WD
3UV	MAY 31/84	3						SA/WD
4V	MAY 31/84	1	P					GR/CO/BO
4V	MAY 31/84	2	P					GR/CO
4V	MAY 31/84	3	P					GR/CO
4UV	MAY 31/84	1						SA/GR/CO
4UV	MAY 31/84	2						SI
4UV	MAY 31/84	3						GR/CO
NUNNS V	MAY 31/84	1						SI
NUNNS V	MAY 31/84	2	P					SI
NUNNS V	MAY 31/84	3	P					SI/SA
NUNNS UV	MAY 31/84	1	P		P			SI
NUNNS UV	MAY 31/84	2						SI
NUNNS UV	MAY 31/84	3						SI
1V	JUL 25/84	1		5%			95%	SA/GR
1V	JUL 25/84	2					100%	SA/GR
1V	JUL 25/84	3	30%					SA/GR
1UV	JUL 25/84	1						SA/GR/CO
1UV	JUL 25/84	2					100%	SA/GR
1UV	JUL 25/84	3						SI/SA/GR
2V	JUL 25/84	1					100%	SA/GR
2V	JUL 25/84	2	10%				90%	SA/GR
2V	JUL 25/84	3	5%	10%			10%	SI/GR
2UV	JUL 25/84	1		5%			95%	SA/GR
2UV	JUL 25/84	2					100%	SA/GR/CO
2UV	JUL 25/84	3					100%	SI/SA/GR

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
3V	JUL 25/84	1						GR/CO
3V	JUL 25/84	2					100%	SI/SA
3V	JUL 25/84	3						SA/GR
3UV	JUL 25/84	1						SA/GR
3UV	JUL 25/84	2						GR/PE
3UV	JUL 25/84	3					100%	SI/WD
4V	JUL 25/84	1						SA/CO
4V	JUL 25/84	2					30%	GR/CO
4V	JUL 25/84	3					100%	GR/CO
4UV	JUL 25/84	1					100%	GR/CO
4UV	JUL 25/84	2					100%	GR/CO
4UV	JUL 25/84	3						GR/CO
NUNNS V	JUL 25/84	1	P				100%	GR/CO
NUNNS V	JUL 25/84	2		P	P			SI/SA
NUNNS V	JUL 25/84	3	P	P				SI/RT
NUNNS UV	JUL 25/84	1						SI/RT
NUNNS UV	JUL 25/84	2						SI/SA
NUNNS UV	JUL 25/84	3						SI/SA
1V	JUN 1/85	1	35%	40%				SI/WD
1V	JUN 1/85	2		100%				SA/CO
1V	JUN 1/85	3	30%	20%				SA/GR
1UV	JUN 1/85	1						SI/SA/GR
1UV	JUN 1/85	2					5%	SA/GR
1UV	JUN 1/85	3	15%					SA/GR
2V	JUN 1/85	1	5%	95%				SA/GR
2V	JUN 1/85	2		30%				SI/SA/CO
2V	JUN 1/85	3		60%				SA/GR
2UV	JUN 1/85	1		15%			70%	SA/GR/CO
2UV	JUN 1/85	2						SI/SA/GR
2UV	JUN 1/85	3						SA/GR/CO
3V	JUN 1/85	1						SI/SA
3V	JUN 1/85	2	10%					SA/CO
3V	JUN 1/85	3						SI/SA/CO
3UV	JUN 1/85	1						SA/GR
3UV	JUN 1/85	2						SA/GR/CO
3UV	JUN 1/85	3						SI/SA
4V	JUN 1/85	1						SI/SA/WD
4V	JUN 1/85	2	2%					SA/GR
4V	JUN 1/85	3						SA/GR/CO
4UV	JUN 1/85	1	10%					SA/GR/CO
4UV	JUN 1/85	2						SA/GR
4UV	JUN 1/85	3						SI/SA
NUNNS V	JUN 1/85	1	70%		30%			SA/GR/CO
NUNNS V	JUN 1/85	2	10%					SI/SA/RT
								SI/SA

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
NUNNS V	JUN 1/85	3	30%		70%			SI/SA
NUNNS UV	JUN 1/85	1						SI/SA
NUNNS UV	JUN 1/85	2			100%			SI/SA
NUNNS UV	JUN 1/85	3						SI/SA
1V	JUL 1/85	1	20%					GR/CO
1V	JUL 1/85	2	P				P	GR/CO
1V	JUL 1/85	3	60%					SA/BO
1UV	JUL 1/85	1					10%	GR/CO
1UV	JUL 1/85	2					90%	GR/CO
1UV	JUL 1/85	3		30%			3%	GR/CO
2V	JUL 1/85	1	5%	P				SI/SA/CO
2V	JUL 1/85	2	2%	10%				SA/GR
2V	JUL 1/85	3		30%			40%	GR/CO
2UV	JUL 1/85	1	P					SA/CO
2UV	JUL 1/85	2	20%				30%	GR/CO
2UV	JUL 1/85	3						GR/CO
3V	JUL 1/85	1	5%	10%				GR/CO
3V	JUL 1/85	2						GR/CO
3V	JUL 1/85	3	30%					SA/GR/CO
3UV	JUL 1/85	1						SI/SA/GR/CO
3UV	JUL 1/85	2	5%					GR/CO
3UV	JUL 1/85	3						SA/GR
4V	JUL 1/85	1					30%	GR/CO
4V	JUL 1/85	2	20%					RT
4V	JUL 1/85	3		30%			30%	GR/CO
4UV	JUL 1/85	1					100%	GR/CO
4UV	JUL 1/85	2						GR/CO
4UV	JUL 1/85	3					70%	GR/CO
NUNNS V	JUL 1/85	1	15%		70%			SI/RT
NUNNS V	JUL 1/85	2	20%					SI/SA
NUNNS V	JUL 1/85	3	20%		60%			SI/SA
NUNNS UV	JUL 1/85	1						SI/SA
NUNNS UV	JUL 1/85	2						SA/GR/CO
NUNNS UV	JUL 1/85	3						SI/SA
1V	JUL 30/85	1					100%	SA/CO
1V	JUL 30/85	2		20%			100%	GR/CO
1V	JUL 30/85	3	20%	30%				SI/GR
1UV	JUL 30/85	1						SA/CO
1UV	JUL 30/85	2					100%	GR/CO
1UV	JUL 30/85	3		40%				SI/GR
2V	JUL 30/85	1		50%			20%	SA/GR
2V	JUL 30/85	2	80%					SA/GR
2V	JUL 30/85	3		100%			70%	GR/CO
2UV	JUL 30/85	1					60%	GR/CO

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
2UV	JUL 30/85	2		25%				GR/CO
2UV	JUL 30/85	3	20%				100%	SA/CO
3V	JUL 30/85	1	35%				100%	SA/GR
3V	JUL 30/85	2						SA/GR
3V	JUL 30/85	3			P			SI/SA/GR
3UV	JUL 30/85	1			P			SA/GR
3UV	JUL 30/85	2					100%	SA/GR
3UV	JUL 30/85	3					5%	SI/SA/WD
4V	JUL 30/85	1					30%	SA/GR/CO
4V	JUL 30/85	2	40%				50%	SA/GR/CO
4V	JUL 30/85	3		20%	50%			SA/CO
4UV	JUL 30/85	1					100%	SA/GR/CO
4UV	JUL 30/85	2						SA/GR/CO
4UV	JUL 30/85	3					100%	SA/GR
NUNNS V	JUL 30/85	1			100%			SI/SA
NUNNS V	JUL 30/85	2	100%		P			RT
NUNNS V	JUL 30/85	3			50%			SI
NUNNS UV	JUL 30/85	1						SI/SA
NUNNS UV	JUL 30/85	2						SA/GR
NUNNS UV	JUL 30/85	3						SI/SA
1V	MAY 8/86	1	40%	30%				SA/GR
1V	MAY 8/86	2	100%					SA/GR
1V	MAY 8/86	3	100%					SA/GR
1UV	MAY 8/86	1						SA/GR
1UV	MAY 8/86	2	100%					SA/GR
1UV	MAY 8/86	3		100%				SA/GR
2V	MAY 8/86	1	P	P				SA/GR
2V	MAY 8/86	2	100%	P	P			SA/GR
2V	MAY 8/86	3	50%					SA/GR
2UV	MAY 8/86	1		25%				SA/GR
2UV	MAY 8/86	2						SA/GR
2UV	MAY 8/86	3						SI/SA
3V	MAY 8/86	1						SA/GR
3V	MAY 8/86	2		30%				SA/GR
3V	MAY 8/86	3	20%	30%				GR/CO
3UV	MAY 8/86	1						SA/GR/CO
3UV	MAY 8/86	2						SA
3UV	MAY 8/86	3						SA/GR/CO
4V	MAY 8/86	1	10%					SA/GR/CO
4V	MAY 8/86	2						GR/CO
4V	MAY 8/86	3						GR/CO
4UV	MAY 8/86	1	10%					SA
4UV	MAY 8/86	2						SA/GR
4UV	MAY 8/86	3						GR/CO

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
NUNNS V	MAY 8/86	1	80%		100%			SI/SA
NUNNS V	MAY 8/86	2	50%		100%			SI/SA
NUNNS V	MAY 8/86	3			100%			SI/SA
NUNNS UV	MAY 8/86	1						SI/SA
NUNNS UV	MAY 8/86	2	10%		20%			SI/SA
NUNNS UV	MAY 8/86	3						SI/SA
1V	JUN 3/86	1	60%	P				SA/CO
1V	JUN 3/86	2	10%	90%				SA/GR
1V	JUN 3/86	3	50%	20%				SI/SA/GR
1UV	JUN 3/86	1	20%					SA/GR
1UV	JUN 3/86	2						SA/GR
1UV	JUN 3/86	3	30%					SA/GR
2V	JUN 3/86	1	10%	90%				SI/SA/CO
2V	JUN 3/86	2		50%				SA/GR
2V	JUN 3/86	3	10%	60%				SA/GR
2UV	JUN 3/86	1	10%	50%				SI/SA/GR
2UV	JUN 3/86	2						GR/CO
2UV	JUN 3/86	3	10%					SI/SA
3V	JUN 3/86	1	50%					SA/CO
3V	JUN 3/86	2	90%	20%				SI/SA/CO
3V	JUN 3/86	3						SA/GR
3UV	JUN 3/86	1	50%					SA/GR
3UV	JUN 3/86	2	30%					SI/SA
3UV	JUN 3/86	3	30%					SI/SA
4V	JUN 3/86	1	30%					SA/GR
4V	JUN 3/86	2	50%					SA/GR/CO
4V	JUN 3/86	3						SA/GR/CO
4UV	JUN 3/86	1	50%	10%				SA/GR
4UV	JUN 3/86	2	50%					SI/SA
4UV	JUN 3/86	3						SA/GR/CO
NUNNS V	JUN 3/86	1	60%		20%			SI/SA/RT
NUNNS V	JUN 3/86	2	40%		60%			SI/SA
NUNNS V	JUN 3/86	3	100%					SA
NUNNS UV	JUN 3/86	1			60%			SI/SA
NUNNS UV	JUN 3/86	2						SI/SA
NUNNS UV	JUN 3/86	3						SI/SA
1V	JUL 7/86	1	100%					SA/GR
1V	JUL 7/86	2	100%				10%	SA/GR
1V	JUL 7/86	3	40%					SA/GR
1UV	JUL 7/86	1		20%				SA/GR
1UV	JUL 7/86	2						SA/GR
1UV	JUL 7/86	3						SA/GR
2V	JUL 7/86	1	60%					SI/SA/GR
2V	JUL 7/86	2	100%	20%				SI/SA

SITE	DATE	REP	Carex	Juncus	Fucus	Pelvet.	Enterom.	SUBSTRATE
2V	JUL 7/86	3		60%				SA/GR
2UV	JUL 7/86	1		60%				SA/GR
2UV	JUL 7/86	2		50%				SA/GR
2UV	JUL 7/86	3						SI/SA/GR
3V	JUL 7/86	1						SA/GR
3V	JUL 7/86	2	30%					SA/GR
3V	JUL 7/86	3	50%	10%				SA/GR
3UV	JUL 7/86	1		10%			10%	SA/GR
3UV	JUL 7/86	2						SA/GR
3UV	JUL 7/86	3						SA/GR
4V	JUL 7/86	1	P	40%				SA/GR
4V	JUL 7/86	2						SA/GR
4V	JUL 7/86	3	P	90%				SA/GR
4UV	JUL 7/86	1						SA
4UV	JUL 7/86	2						SA/GR
4UV	JUL 7/86	3	10%					SA/GR
NUNNS V	JUL 7/86	1	100%		P			SI
NUNNS V	JUL 7/86	2	100%		P			SI/SA
NUNNS V	JUL 7/86	3			P			SI/SA
NUNNS UV	JUL 7/86	1						SI/SA
NUNNS UV	JUL 7/86	2						SI/SA
NUNNS UV	JUL 7/86	3						SA/GR

LEGEND:

SI	Silt
SA	Sand
GR	Gravel
CO	Cobble
BO	Boulder
PE	Pebble
RT	Root mat
WD	Wood debris
P	Present
PLUG	Planted marsh plug
Pelvet.	Pelvetiopsis sp.
Enterom.	Enteromorpha sp.

FIGURE 1. Map of east coast of Vancouver Island showing the location of Campbell River estuary.

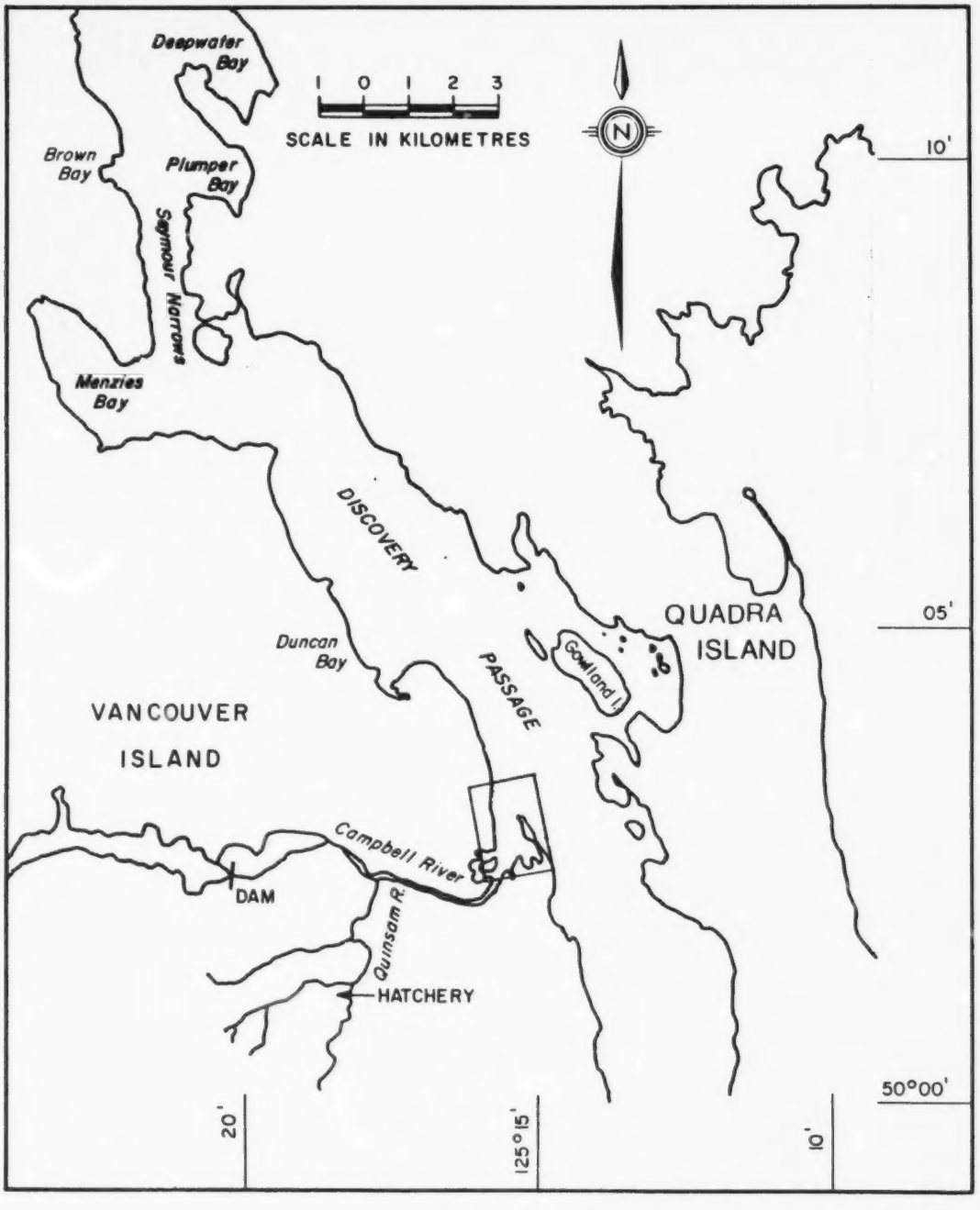
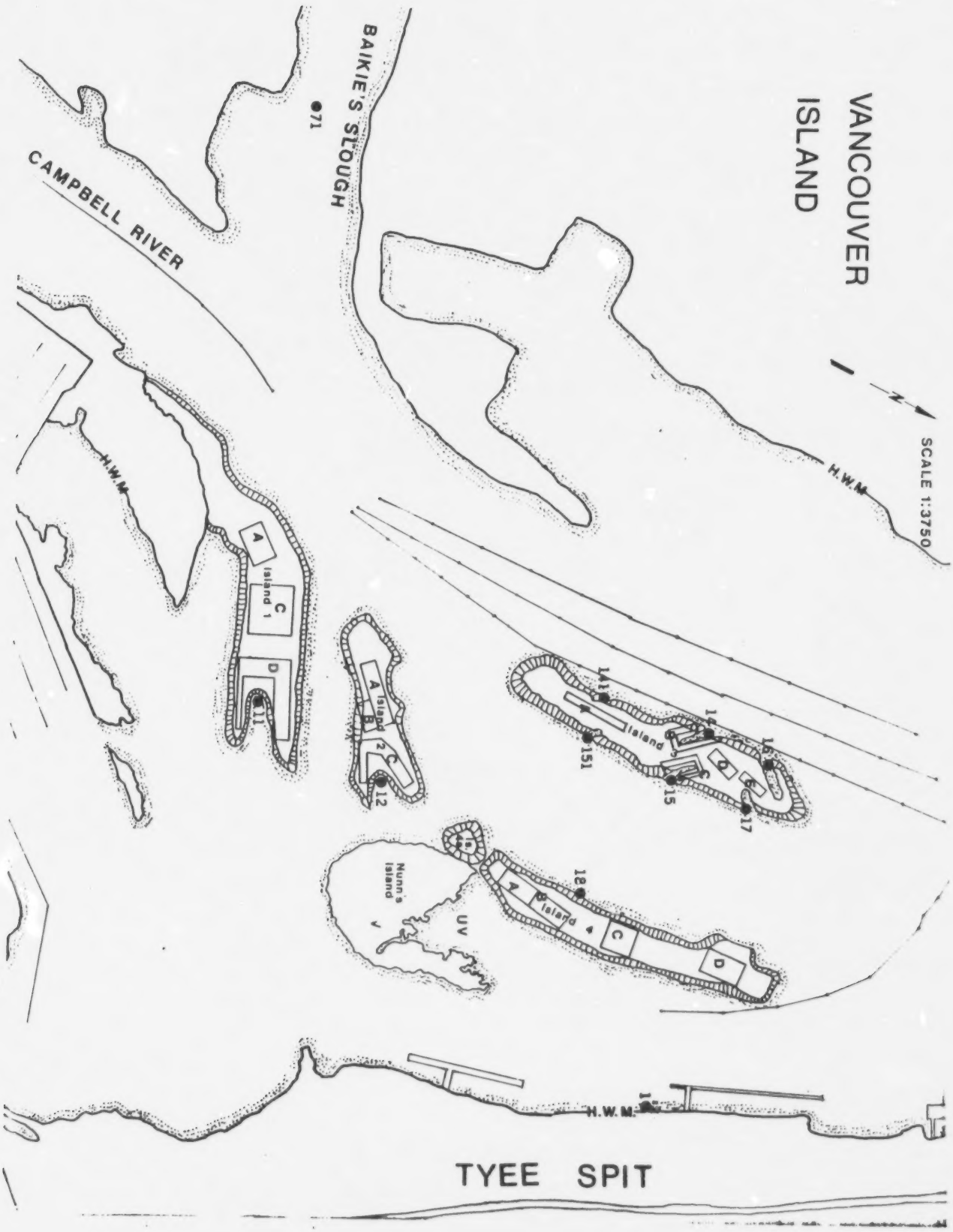

Deepwater Bay
Brown Bay
Plumper Bay
Seymour Narrows
Menzies Bay
1 0 1 2 3
SCALE IN KILOMETRES
N
10'
DISCOVERY PASSAGE
Duncan Bay
QUADRA ISLAND
Gowland I.
05'
VANCOUVER ISLAND
Campbell River
DAM
Quinsam R.
HATCHERY
50°00'
20'
125°15'
10'

FIGURE 2. Map of Campbell River estuary showing the location of islands #1 to #4 (artifical) and Nunn's Island (reference) with the sites of the original planted cores.


VANCOUVER ISLAND
SCALE 1:3750
BAIKIE'S SLOUGH
CAMPBELL RIVER
71
H.W.M.
A
Island 1
C
D
11
A
Island 2
B
12
141
151
Island
14
15
16
17
18
Nunn's Island
Island 4
TYEE SPIT